Chesterfield Fire Department

Commercial Site Plan Submissions
Minimum Information Required

INFORMATION REQUIRED ON ALL SITE PLANS SUBMITTED FOR REVIEW:

- ☑ Location of all fire lanes with details of curb marking and sign locations.
- ☑ Location of fire department connections for fire protection systems such as sprinkler, standpipe etc...
- ☑ Location and type of any proposed hazardous materials storage areas, inside or outside.
- ☑ Arrangement of water supply piping for fire protection, including the location of any backflow prevention devices.
- ☑ Calculation of the fire flow required on site. When the calculated fire flow exceeds 1000 g.p.m. an approved computer generated flow test shall be submitted verifying that the needed fire flow (NFF) is available on site. Location of any fencing, temporary or permanent, or any other potential obstruction to hydrants, fire department connections or fire lanes.
- ☑ Buildings which will be equipped with an automatic fire sprinkler system shall have the following note added to the plans: "Approval of site plan does not include the design of the fire sprinkler system underground piping from backflow prevention device to one foot above finish floor level. Prior to installation, shop drawings and a separate permit application and must be submitted through the department of building inspections for review and approval."

Questions ? Contact the Fire Prevention Bureau, Plans Review Section, at (804)748-1404.

Site Access & Fire Lanes

- A minimum of two access points from a public street should be provided to all building sites. When more than 50 residential type units are to be constructed, a minimum of *two remotely located* access locations **must** be provided.

- When two remotely located access points are required, the minimum centerline to centerline separation shall be 1000 feet.

- Access roads to residential and institutional type developments shall be a minimum 24 feet in width and must be paved with asphalt or concrete. When approved by Chesterfield Planning Department, all other access roads may be constructed of an all weather gravel surface.

- Minimum entry width and radius requirements as specified by Virginia Department of Transportation and Chesterfield Department of Transportation shall be met.

- Buildings exceeding 50,000 square feet in area on any floor shall have *Fire Lane*s around the entire perimeter of the building. When an automatic fire sprinkler system is installed throughout the building, *Fire Lanes* are required on the two opposing longest sides of the building. *Fire Lanes* shall be within 30 feet of the building exterior wall.

- Buildings not exceeding 50,000 square feet in area on any floor shall have *Fire Lane*s on the two opposing longest sides of the building. When an automatic fire sprinkler system is installed throughout the building, *Fire Lanes* are required on at least two adjacent sides of the building. *Fire Lanes* shall be within 30 feet of the building exterior wall.

- Multistory residential, health care or hotel type buildings shall have fire lane access around the entire perimeter of the building unless otherwise approved by the Fire Department.

Effective Date: August 14, 1998

- ☑ Dead end fire lanes shall be avoided. An approved turn around space shall be provided on all dead end fire lanes in excess of 100 feet in length.

- ☑ Minimum Outside Turn Radius for use in design of *Fire Lanes* and turn around spaces shall be 42 feet.

- ☑ Fire lanes shall be constructed of an all weather surface capable of supporting fire fighting equipment. Asphalt or concrete paving shall be provided unless otherwise approved by the Fire Official. Fire Lanes shall be designed to support 60,000 lbs vehicle loads.

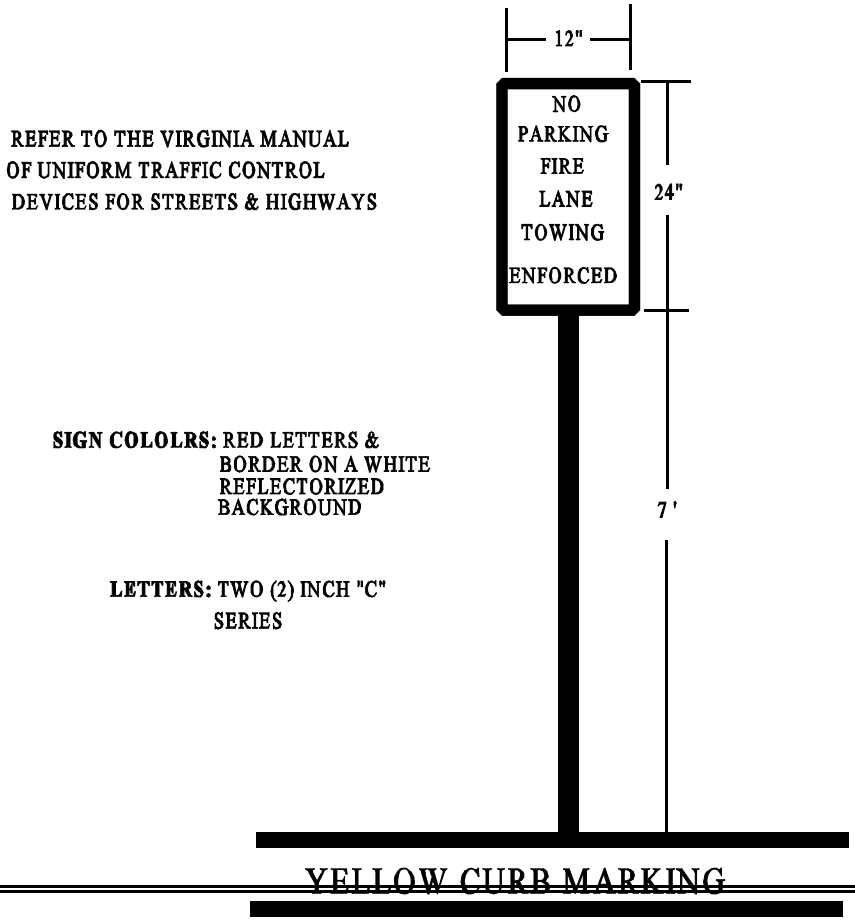
- ☑ Minimum width of all *Fire Lanes* shall be 20 feet unless approved by the Fire Official.

- ☑ When fire or ambulance access is required to pass under a drive-thur type canopy, the minimum clear height under the canopy shall be 14 feet. This clearance may be reduced upon approval by the Fire Official.

- ☑ Fire lane locations shall be determined by the placement of fire hydrants and connections to any fire protection systems located within the building, as well as by the building design and site traffic flow characteristics.

- ☑ If any building area increases are to be applied in a accordance with the provisions of Chapter 5 of the Virginia Uniform Statewide Building Code, it is the responsibility of the site designers to coordinate fire lane locations with the building designer.

Fire lane locations shall be clearly indicated on the submitted site plan. Yellow curb marking and approved signs, posted at 75' to 100' intervals are the standard means by which to delineate fire lanes.



Signs and markings to delineate fire lanes shall be provided and installed by the owner or his agent prior to building occupancy.

When determined necessary by the Fire Official, additional pavement markings may be required.

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FIRE HYDRANTS

Hydrant locations shall be clearly shown on the submitted site plan. Hydrant installation details shall be in accordance with the **Chesterfield Dept. of Utilities Water & Sewer Specifications & Procedures Manual.**

☑ The number of hydrants required shall be based on:

Needed Fire Flow (NFF): One hydrant shall be provided for each 1000 gpm, or fraction there of, based on the calculated fire flow required.

Remote location: The first required hydrant shall be located within 400 feet of the most remote exterior point of the building. Hose lay distance shall be measured along the natural and unobstructed path of travel. When a second hydrant is required based on the Needed Fire Flow, it shall be located within 750 feet of the most remote exterior point of the building. Additional hydrants required shall be located within 1000 feet of the most remote exterior point of the building.

When the building is equipped throughout with an approved automatic fire sprinkler system the maximum hose lay distance may be increased to 600 feet. A second hydrant shall be required accessible to the site within 1500 feet of the most remote exterior point of the building.

All hydrants shall be located a minimum of 40 feet from the building exterior wall.

Location of the Fire Department Connection for any Fire Protection Systems: Hydrant shall be provided within 50 feet of the fire department connection to any fire protection systems located within the building. The fire department connection to the sprinkler system should be located at the backflow prevention device vault when possible. The location shall be accessible near the main project entry drive when feasible.

☑ Hydrants and Fire Department Connections to sprinkler systems shall remain clear and unobstructed by landscaping, parking or other objects.

☑ Hydrants and Fire Department Connections to sprinkler systems shall be located where they are accessible from designated fire lanes or other routes as approved by the fire official.

☑ Hydrants shall be located not more than 12 feet behind the face of curb or edge of pavement, unless approved by the fire official.

No consideration will be given to off-site hydrants unless they are shown on the plan submitted for review.

FIRE FLOW

Needed fire flow (NFF) shall be shown on the submitted site plan. Calculations shall be submitted as a part of the site plan submission. Fire flow estimates shall be calculated in accordance with the procedures set forth in the latest edition of the **National Fire Protection Associations Fire Protection Handbook,** as referenced in the **Chesterfield Dept. of Utilities Water & Sewer Specifications & Procedures Manual.**

I.S.O. METHOD OF CALCULATING THE NEEDED FIRE FLOW (NFF)
NFF = (Ci) (Oi) (X+P)I
Ci = 18F multiplied by the square root of (Ai) F = coefficient for the class of construction Ai = effective area Oi = occupancy factor Xi = exposure factor Pi = communication factor

Needed fire flows in buildings equipped throughout with an approved automatic fire sprinkler system shall be the **greater** of 1000 gpm plus the sprinkler demand **OR** the sprinkler system demand plus the hose stream allowance as set forth in the sprinkler system design standard, such as NFPA 13, 231 or 231C.

For complete information on factors and alternate methods of calculation see the AMERICAN WATER WORKS ASSOCIATION MANUAL OF WATER SUPPLY PRACTICES, DISTRIBUTION SYSTEMS REQUIREMENTS FOR FIRE PROTECTION (AWWA M 31) or THE N.F.P.A. FIRE PROTECTION HANDBOOK.

It is the owner/designers responsibility to coordinate building and site design factors in order to accurately calculate the needed fire flow (NFF).